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M. Irie	1495	Properties and applications of photoresponsive polymers
E. Lissi and M. A. Rubio	1503	$O_2(^3\Sigma)$ and $O_2(^1\Delta)$ processes in microhetero- genous systems
K. Maruyama and A. Osuka	1511	A chemical approach toward photosynthetic reaction center
P. Mathis	1521	Primary processes in photosynthetic reaction centers
T. Miyashi, H. Ikeda, A. Konno, O. Okitsu and Y. Takahashi	1531	Photoinduced electron-transfer reactions of the cope and related systems
R. N. Perutz, S. T. Belt, A. McCamley and M. K. Whittlesey	1539	C–H activation by organometallics: the role of matrix isolation studies
R. Z. Sagdeev and E. G. Bagryanskaya	1547	Stimulated nuclear polarization—a new method for studying the mechanisms of photochemical reactions

J. C. Scaiano, V. Wintgens and J. C. Netto-Ferreira	1557 Mechanistic studies of the photogeneration and photochemistry of <i>ortho</i> -xylylenes
G. B. Schuster	1565 Photochemistry of organoborates: intra-ion pair electron transfer to cyanines
J. P. Simons	1573 Stereodynamics of molecular photodissociation
R. Srinivasan, B. Braren and K. G. Casey	1581 Ultraviolet laser ablation and decomposition of organic materials
J. W. Verhoeven	1585 Electron transport via saturated hydrocarbon bridges: 'exciplex' emission from flexible, rigid and semiflexible bichromophores
P. A. Wender, R. Ternansky, M. deLong, S. Singh, A. Olivero and K. Rice	1597 Arene-alkene cycloadditions and organic synthesis
X. Coqueret, A. Hajaiej, A. Lablache-Combier, C. Loucheux, R. Mercier, L. Pouliquen and L. Randrianarisoa-Ramanantsoa	1603 Synthesis and properties of photoreactive polysiloxanes containing pendant functional groups
M. Kasha	1615 Four great personalities of science: G. N. Lewis, J. Franck, R. S. Mulliken and A. Szent- Györgyi

IUPAC Recommendations on Nomenclature and Symbols and Technical Reports from Commissions

Commission on Photochemistry (D. F. Eaton)	1631 Recommended methods for fluorescence decay analysis
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SEPTEMBER

Plenary and invited lectures presented at the Ninth International Symposium on Plasma Chemistry held at Pugnochiuso, Italy: 4–8 September 1989

Plenary Lectures

G. G. Volpi	1649 Elementary processes in chemical dynamics
M. L. Mandich, W. D. Reents, Jr. and K. D. Kolenbrander	1653 Chemical properties of small silicon clusters
M. Hirose and S. Miyazaki	1661 Plasma deposition of semiconductor multi-layer structures
U. Kogelschatz	1667 Silent discharges for the generation of ultra-violet and vacuum ultraviolet excimer radiation
H. H. Maecker	1675 Effects of chemical reactions in arcs

Invited Lectures

Topical lectures: cold plasma

J. Perrin	1681 Deposition of amorphous silicon alloys
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H. K. Yasuda, Y. S. Yeh and S. Fusselman	1689	A growth mechanism for the vacuum deposition of polymeric materials
F. D. Egitto	1699	Plasma etching and modification of organic polymers
D. L. Flamm	1709	Mechanisms of silicon etching in fluorine- and chlorine-containing plasmas
N. St. J. Braithwaite	1721	Electron energy distribution functions in processing plasmas
D. I. Slovetsky	1729	Modelling of chemical reactions under non-equilibrium halogenated electrical discharge conditions
A. Gicquel, N. Laidani, P. Saillard and J. Amouroux	1743	Plasma and nitrides: application to the nitridation of titanium
S. Nakayama	1751	ECR (electron cyclotron resonance) plasma for thin film technology
A. S. Harrus, G. W. Hills and M. J. Thoma	1757	The effect of non-reactive ions on the properties of PECVD (plasma enhanced chemical vapor deposition) TEOS (tetraethoxysilane) oxides

Topical lectures: thermal plasma

N. A. Barcza, T. R. Curr and R. T. Jones	1761	Metallurgy of open-bath plasma processes
K. Takeda, M. Ito and S. Takeuchi	1773	Properties of coatings and applications of low pressure plasma spray
O. P. Solonenko	1783	Complex investigation of thermophysical processes in plasma-jet spraying
H.-D. Steffens and M. Mack	1801	Plasma spraying as an advanced tool in surface engineering
P. C. Kong and Y. C. Lau	1809	Plasma synthesis of ceramic powders
O. I. Yas'ko	1817	Some aspects of the generalization of electric arc characteristics
R. W. Smith and D. Apelian	1825	Plasma spray consolidation of materials
C. H. Kruger, T. Owano and M. Gordon	1833	Measurements of nonequilibrium effects in thermal plasmas

IUPAC Recommendations on Nomenclature and Symbols and Technical Reports from Commissions

Commission on Electrochemistry (G. Gritzner)	1839	Polarographic half-wave potentials of cations in nonaqueous solvents
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OCTOBER*Plenary and invited lectures presented at the Eighth International Conference on Organic Synthesis held in Helsinki, Finland: 23-27 July 1990*

T. A. Hase, J. Koskimies, G. Brunow and L. Koskinen	iv	Preface
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Plenary Lectures

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|---|------|---|
| R. Breslow | 1859 | Enzyme mimics |
| B. Cazes | 1867 | Synthetic methodology involving the carbo-palladation of allenes |
| I. Fleming | 1879 | Stereocontrol in organic synthesis using silicon compounds |
| S. Hanessian, J. Franco and B. Larouche | 1887 | The psychobiological basis of heuristic synthesis planning—man, machine and the chiron approach |
| C. H. Heathcock, S. Piettre and J. Kath | 1911 | Mechanistic investigations of a biomimetic polycyclization process that leads to the <i>Daphniphyllum</i> alkaloids |
| W. L. Jorgensen, E. R. Laird, A. J. Gushurst, J. M. Fleischer, S. A. Gothe, H. E. Nelson, G. D. Paderes and S. Sinclair | 1921 | CAMEO: a program for the logical prediction of the products of organic reactions |
| P. Kocienski and C. Barber | 1933 | Synthetic applications of metallate rearrangements |
| W. Oppolzer | 1941 | Regio- and stereocontrolled catalytic palladium- and nickel 'ene-type' cyclizations |
| G. H. Posner | 1949 | New synthetic methodology using organo-sulfur compounds |

Invited Lectures

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| J. Barluenga, F. Aznar, S. Fustero and M. Tomás | 1957 | New perspectives of carbo- and hetero-1,3-dienes in organic synthesis |
| J. Bergman and B. Pelzman | 1967 | Synthesis of carbazole alkaloids |
| T. Takabatake and M. Bersohn | 1977 | Synthetic routes proposed by a noninteractive synthesis program |
| R. F. C. Brown | 1981 | Are flash pyrolytic reactions useful? |
| V. Fiandanese | 1987 | Sequential cross-coupling reactions as a versatile synthetic tool |
| R. W. Hoffmann, G. Niel and A. Schlapbach | 1993 | Stereocontrol in allylboration reactions |
| D. Hoppe, T. Krämer, J.-R. Schwark and O. Zschage | 1999 | Metallated 2-alkenyl carbamates: chiral homoenolate reagents for asymmetric synthesis |
| M. Isobe, T. Nishikawa, A. Herunsalee, T. Tsukiyama, Y. Hirose, K. Shimokawa and T. Goto | 2007 | Methodology for stereochemical control in bioactive natural product synthesis—new methods toward enediyne antitumor antibiotics |
| E. Keinan, S. C. Sinha, A. Sinha-Bagchi, E. Benory, M. C. Ghozi, Z. Eshhar and B. S. Green | 2013 | Towards antibody-mediated metallo-porphyrin chemistry |
| G. L. Larson | 2021 | α -silyl carbonyl compounds |

P. Laszlo	2027	Catalysis of organic reactions by inorganic solids
S. V. Ley	2031	Stereoselective synthesis of inositol phosphates
M. F. Semmelhack, C. Kim, N. Zhang, C. Bodurow, M. Sanner, W. Dobler and M. Meier	2035	Intramolecular alkoxy-carbonylation of hydroxy alkenes promoted by Pd(II)
E. P. Serebryakov, N. Cong Hao and M. V. Mavrov	2041	Chiral building blocks based on technical grade β -citronellene
V. Snieckus	2047	The directed ortho metalation reaction. Methodology, applications, synthetic links, and a non-aromatic ramification
L. Hill, C. J. Richards and S. E. Thomas	2057	Transition metal-stabilised vinylketenes
H. Yamamoto and K. Maruoka	2063	Stereo- and regioselective organic transformations based on main group organometallic reagents—application to the stereo-controlled Claisen rearrangements

NOVEMBER

Plenary and specially invited lectures presented at the Fourth International Symposium on Solubility Phenomena held in Troy, NY, USA: 1–3 August 1990

Y. Marcus	2069	Solubility and solvation in mixed solvent systems
S. Ahrlund	2077	Complex equilibria, solvation and solubility
R. F. Prini	2083	Influence of thermodynamic variables and molecular parameters in the solubility of gases in liquids
F. A. Lewis	2091	Solubility of hydrogen in metals
L. Andreoli-Ball, S. J. Sun, L. M. Trejo, M. Costas and D. Patterson	2097	Thermodynamics and structure in non-electrolyte solutions
I. C. Sanchez and P. A. Rodgers	2107	Solubility of gases in polymers
J-P. E. Grolier	2115	Solution calorimetry at high temperatures and elevated pressures
A. F. Danil de Namor	2121	Thermodynamics of host–guest interactions: Solubility enhancements
V. M. Valyashko	2129	Sub- and supercritical equilibria in aqueous electrolyte solutions

IUPAC Recommendations on Nomenclature and Symbols and Technical Reports from Commissions

Commission on Polymer Characterization and Properties (S. Amiya, S. Tsuchiya, R. Qian and A. Nakajima)	2139	The study of microstructures of poly(vinyl alcohol) by NMR
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Commission on General Aspects
of Analytical Chemistry
(L. Sommer, G. Ackermann,
D. Thorburn Burns & S. B. Savvin)

Commission on Atmospheric
Chemistry (J. G. Calvert)

- 2147 Present and future status of organic analytical
reagents—Part I: General remarks

- 2167 Glossary of atmospheric chemistry terms
(Recommendations 1990)

DECEMBER

Plenary lectures presented at the Twenty-first International Conference on Solution Chemistry held in Ottawa, Canada: 5–10 August 1990

C. Detellier

iv Preface

K. J. Laidler

2221 A century of solution chemistry

D. B. Smithrud, E. M. Sanford,
I. Chao, S. B. Ferguson, D. R.
Carcanague, J. D. Evansck,
K. N. Houk and F. Diederich

2227 Solvent effects in molecular recognition

E. M. Eyring, S. Petrucci,
M. Xu, L. J. Rodriguez, D. P.
Cobranchi, M. Masiker and
P. Firman

2237 Lithium ion complexation kinetics by cyclic
and acyclic polyethers

J. D. Simon

2243 Solvation dynamics: new insights into chemical
reaction and relaxation processes

T. Yamaguchi

2251 Diffraction and X-ray absorption studies of
electrolyte solutions

B. G. Cox and H. Schneider

2259 Kinetics and mechanism of macrocyclic
complex formation

V. Zutić, V. Svetličić and
J. Tomačić

2269 Dissolved and dispersed organic matter in
natural waters. Progress by electroanalysis

B. C.-Y. Lu, D. Zhang and
W. Sheng

2277 Solubility enhancement in supercritical
solvents

J. Barthel, R. Buchner,
K. Bachhuber, H. Hetzenauer,
M. Kleebauer and H. Ortmaier

2287 Molecular processes in electrolyte solutions
at microwave frequencies

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Commissions on Molecular
Structure and Spectroscopy &
Colloid and Surface Chemistry
including Catalysis (J. H. Block,
A. M. Bradshaw, P. C. Gravelle,
J. Haber, R. S. Hansen,
M. W. Roberts, N. Sheppard and
K. Tamari)

2297 A survey of experimental techniques in surface
chemical physics

Commission on General Aspects
of Analytical Chemistry
(L. Sommer, G. Ackermann and
D. Thorburn Burns)

2323 Present and future status of organic analytical
reagents – Part II. Inorganic chemical analysis:
classical methods, molecular spectroscopy
(absorption and emission) and solvent
extraction

Commission on Oils, Fats and
Derivatives (W. D. Pocklington)

2339 Determination of the iodine value of oils and
fats: results of a collaborative study

